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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR   | ATTORNEY DOCKET NO.             | CONFIRMATION NO.            |
|--|-------------|------------------------|---------------------------------|-----------------------------|
| 10/538,784   | 06/10/2005  | Michael McNiven Rumsey | 0470.0010C                      | 4306                        |
| 27896 7590 03/02/2010<br>EDELL, SHAPIRO & FINNAN, LLC<br>1901 RESEARCH BOULEVARD<br>SUITE 400<br>ROCKVILLE, MD 20850 |             |                        | EXAMINER<br>YU, LIHONG          |                             |
|  |             |                        | ART UNIT<br>2611                | PAPER NUMBER                |
|  |             |                        | NOTIFICATION DATE<br>03/02/2010 | DELIVERY MODE<br>ELECTRONIC |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

epatent@usiplaw.com

|                              |                                      |  |  |
|------------------------------|--------------------------------------|--|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/538,784 | <b>Applicant(s)</b><br>RUMSEY, MICHAEL MCNIVEN |  |
|                              | <b>Examiner</b><br>LIHONG YU         | <b>Art Unit</b><br>2611                        |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 17 November 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 14, 15, 17-21, 23-26 and 28-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 14, 15, 17-21, 23-26 and 28-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 17, 2009 has been entered.

### ***Claim Objections***

2. Claim 14 is objected to because of the following informalities:

In claim 14, line 5: near the end of line 5, the phrase '**is capable of**' is considered indefinite. This phrase is subject to more than one interpretation. Appropriate correction is required.

3. Claim 37 is objected to because of the following informalities:

4. In claim 37, line 2: this line should end with a period ".".

***Response to Arguments***

5. Applicant's arguments filed on November 17, 2009 have been fully considered but they are not persuasive.

**(1) Applicant's Arguments:** "Specifically, in Minnis, the receiver can select between filters designed for 2G and 3G operations, but the filters provided for each of the operating modes are fixed. This can be seen from Figure 17 where it is indicated that the filter coefficients are held in ROM. Hence, the filter coefficients cannot be modified once they have been selected for each of the modes".

**Examiner's Response:** As is noticed by the applicant, the filter coefficients are held in ROM. Minnis also indicates that the filters are **programmable** via settings held in ROM (see **Minnis at col. 10, lines 34-43**).

**(2) Applicant's Arguments:** "In Minnis, on the other hand, there is only one stage of sample rate adjustment, namely block 524 in Figure 5 (and that block does not even appear in Figure 17 of Minnis). Thus, Minnis does not disclose sample rate adjustment before and after digital filtering, as is required by the claimed invention".

**Examiner's Response:** In Figure 17, Minnis shows filter 1622. Minnis explains that filter 1622 is decimation filter (see **Minnis at col. 10, lines 34-43**). Minnis further explains that the decimation reduces the sample rate from 48 times the GSM bit rate to 4 times the GSM bit rate. Minnis indicates that the GSM bit rate is 270.8333 kHz (see **Minnis at col. 7, lines 23-46**).

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After the signals are processed by decimation filter 1622, the signals are input to equalizer filter 536 (see **Minnis at Figure 17**). Minnis teaches that the signal rate is further reduced to the raw GSM bit rate of 270.833 kHz (see **Minnis at col. 8, lines 65-67 and col. 9, lines 1-3**) for the digital signal processing circuitry.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 14, 15, 17-21, 23-26, 28, 29 and 31-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minnis et al (US 6,954,628 B2).

#### **Consider claims 14 and 20:**

Minnis discloses an apparatus for preparing a signal, which is one of the UMTS and GSM signal, and has been received at a wireless communication device, to be processed by a receiver which will attempt to recover information conveyed by the signal (*see Minnis at col. 9, lines 50-59 and Fig. 17, where Minnis describes a combined dual-mode UMTS and GSM receiver*), the apparatus comprising:

- a filter adapted to filter the signal in a digital form having samples appearing at a sample rate and an adjuster adapted to adjust the sample rate (*see Minnis at col. 10,*

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- lines 17-43 and Fig. 17, where Minnis describes decimation filters 1622 that is connected to the output of ADCs 1620 and 120),*
- wherein the filter is capable of filtering the signal in both a first manner which is required when the receiver is a UMTS receiver and a second manner which is required when the receiver is a GSM receiver (*see Minnis at col. 10, lines 34-43, where Minnis discusses the decimation filters 1622 are for UMTS and GSM modes; see Minnis at col. 9, lines 60-65, where Minnis describes the receive is operating in one mode at a time*),
  - wherein the adjuster is adapted to perform adjustments to the sample rate when the receiver is the GSM receiver and the adjustments comprise altering the sample rate before the signal is filtered to permit the filter to perform filtering in the second manner (*see Minnis at col. 5, lines 59-66 and Fig. 5, where Minnis describes the GSM receiver architecture; see Minnis at col. 7, lines 59-67 and col. 8, lines 1-16, where Minnis describes a down-sampling block (DS) 524 that decimates the sampling rate to approximately four times the GSM bit rate, after the down-sampling, the signal is passed to a pair of FIR filters 526 and 528*), and
  - altering the sample rate after the signal has been filtered to provide the signal with a sample rate required by the GSM receiver (*see Minnis at col. 7, lines 23-46, where Minnis describes that the decimation reduces the sample rate from 48 times the GSM bit rate to 4 times the GSM bit rate of 270.8333 kHz; see Minnis at col. 8, lines 56-67, col. 9, lines 1-3 and Fig. 17, where Minnis describes that the GSM signal processed*

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*by the FIR filters 536 and 538 is then provided to the remainder of the receiver at the raw GSM bit rate of 270.833 kHz),*

- wherein the filter comprises an FIR filter with adjustable tap coefficients which can be adjusted to allow the filter to perform filtering in the first manner and in the second manner (*see col. 8, lines 5-16, where Minnis describes that the filter after the decimation is FIR filter; see Minnis at col. 10, lines 34-43, where Minnis describes that the filter coefficients are programmable for the UMTS and GSM modes*).

Minnis discloses that the UMTS signal are input to a rake receiver 126 and a Digital Signal Processor 128 (*see Minnis at Fig. 17 and col. 5, lines 9-20*). However, Minnis does not specifically disclose the filter performs filtering in the first manner without the adjustments to the sample rate when the receiver is the UMTS receiver.

It would have been obvious for one of ordinary skill in the art to understand from Minnis disclosure that there is no adjustment to the sample rate when the receiver is in UMTS mode.

**Consider claims 15 and 21:**

Minnis discloses the invention according to claims 14 and 20 above. Minnis discloses the adjuster is adapted to change to said sample rate by a fractional factor (*see Minnis at col. 7, lines 23-46, where Minnis describes that the decimation reduces the sample rate from 48 times the GSM bit rate to 4 times the GSM bit rate*).

**Consider claims 17 and 28:**

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Minnis discloses the invention according to claims 14 and 25 above. Minnis discloses the filter is adapted to correct errors introduced by the adjuster (*see Minnis at col. 10, lines 34-43, where Minnis describes the filters 1622 also perform the complex signal reconstruction function*).

**Consider claims 18, 23, 31 and 33:**

Minnis discloses the invention according to claims 14, 20, 25 and 32 above. Minnis disclose the UMTS receiver comprises a rake receiver for operating on the signal and the GSM receiver comprises an equalizer for operating on the signal (*see Minnis at col. 5, lines 9-20 and Fig. 17, where Minnis describes a rake receiver 126 for UMTS bit-stream; see Minnis at col. 8, lines 66-67, col. 9, lines 1-3 and Fig. 17, where Minnis describes equalization block (EQ) 536 for GSM signals*).

**Consider claim 19:**

Minnis discloses the invention according to claims 14 above. Minnis discloses a participant for a wireless communications network, the participant comprising the apparatus of claim 14 (*see Minnis at Fig. 17 and col. 3, lines 62-67, where Minnis describes an antenna 102 for receiving the GSM and UMTS signals*).

**Consider claim 24:**

Minnis discloses the invention according to claims 14 above. Minnis discloses a mixed signal section for a participant for a wireless communications network, the mixed signal section

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comprising the apparatus of claim 14 (*see Minnis at Fig. 17 and col. 9, lines 50-65, where Minnis describes mixers 108 and 110 for receiving the GSM and UMTS signals*).

**Consider claims 25 and 32:**

Minnis discloses in a wireless receiver an apparatus for processing a signal which is one of the UMTS signal and GSM signal in form of digital samples appearing at a sample rate (*see Minnis at col. 9, lines 50-65 and Fig. 17, where Minnis describes a combined dual-mode UMTS and GSM receiver; see col. 10, lines 17-33, where Minnis describes ADC converters 1620 and 120; see Minnis at col. 9, lines 60-65, where Minnis describes the receive is operating in one mode at a time*), the apparatus comprising:

- a decimator for the signal when the wireless receiver is a UMTS receiver and altering the sample rate of the signal when the wireless receiver is a GSM receiver (*see Minnis at col. 10, lines 34-43, where Minnis discusses the decimation filters 1622 are for UMTS and GSM modes*);
- a filter for filtering the signal when the wireless receiver is the UMTS receiver and filtering the decimated signal when the wireless receiver is the GSM receiver (*see Minnis at col. 7, lines 59-67 and col. 8, lines 1-16, where Minnis discusses that after down-sampling, that is decimation, the signal is sent to a pair of FIR filters*); and
- an adaptor for altering the sample rate of the filtered signal when the wireless receiver is the GSM receiver (*see Minnis at col. 7, lines 23-46, where Minnis describes that the decimation reduces the sample rate from 48 times the GSM bit rate to 4 times the*

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*GSM bit rate of 270.8333 kHz; see Minnis at col. 8, lines 56-67, col. 9, lines 1-3 and Fig. 5, where Minnis describes that the GSM signal processed by the FIR filters 526 and 528 is then provided to the remainder of the receiver at the raw GSM bit rate of 270.833 kHz),*

- *the adaptor adjusting the sample rate of the signal before the filter and adjusting the sample rate of the filtered signal after the filter (see Minnis at col. 7, lines 59-67 and col. 8, lines 1-16, where Minnis describes a down-sampling block (DS) 524 that decimates the sampling rate to approximately four times the GSM bit rate; see col. 8, lines 66-67 and col. 9, lines 1-3, where Minnis describes that after the down-sampling, the signal is passed to a pair of filters 536 and 538 to be output at the raw GSM bit rate),*
- *wherein the filter comprises an FIR filter with adjustable tap coefficients which can be adjusted to allow the filter to perform filtering in the first manner and in the second manner (see col. 8, lines 5-16, where Minnis describes that the filter after the decimation is FIR filter; see Minnis at col. 10, lines 34-43, where Minnis describes that the filter coefficients are programmable for the UMTS and GSM modes).*

Minnis discloses the decimation filter with programmable settings for the UMTS mode (*see Minnis at col. 10, lines 34-52, where Minnis describes the decimation filters 1622 with programmable settings held in ROM 1623*). However, Minnis does not specifically disclose that the decimator bypasses the signal when the wireless receiver is a UMTS receiver.

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It would have been an obvious matter of design choice to alter the setting for the decimation filter such that the decimation filters perform no adjustments to the sample rate when the receiver is the UMTS receiver, since such a modification would have involved a mere change in the size of the decimation. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955).

**Consider claim 26:**

Minnis discloses the apparatus according to claim 25 above. Minnis discloses decreasing the sample rate of the filtered signal (*see Minnis at col. 7, lines 23-46, where Minnis describes that the decimation reduces the sample rate from 48 times the GSM bit rate to 4 times the GSM bit rate of 270.8333 kHz; see Minnis at col. 8, lines 56-67, col. 9, lines 1-3 and Fig. 5, where Minnis describes that the GSM signal processed by the FIR filters 526 and 528 is then provided to the remainder of the receiver at the raw GSM bit rate of 270.833 kHz*).

Minnis does not disclose an interpolation unit for increasing the sample rate of the filtered signal. Since Minnis discloses decreasing the sample rate of the filtered signal, it would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Minnis, and to increase the sample rate as necessary.

**Consider claim 29:**

Minnis discloses the apparatus according to claim 25 above. Minnis discloses a switch electrically connected with the decimator for selecting the signal received from one of the UMTS

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receiver and the GSM receiver (*see Minnis at col. 9, lines 50-65, where Minnis describes the dual-mode UMTS and GSM receive is operating in one mode at a time*).

**Consider claim 34:**

Minnis discloses the apparatus according to claim 25 above. Minnis discloses a mixed signal section for a participant for a wireless communications network, the mixed signal section comprising the apparatus of claim 25 (*see Minnis at Fig. 17 and col. 9, lines 50-65, where Minnis describes a combined dual-mode UMTS and GSM receiver which has a RF front end with mixers 108 and 110*).

**Consider claims 35, 36 and 37:**

Minnis discloses the invention according to claims 14, 20 and 25 above. Minnis discloses the filter is programmed to compensate for frequency distortions introduced by a receiver of which the apparatus is a part (*see Minnis at Fig. 17 and col. 10, lines 34-43, where Minnis describes that the programmable filter 1622 also performs the complex signal reconstruction; see col. 9, lines 18-49, where Minnis describes that during the complex signal reconstruction, a +100 kHz frequency shift is applied and an inverse Fourier transform on the shifted frequency response is performed, the filter is then able to pass the wanted signal with minimal frequency distortion, apply sufficient attenuation to interferers and reject most of the high frequency noise generated by the modulator located in the receiver*).

8. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Minnis et al (US 6,954,628 B2) in view of Reisch et al (US 5,168,375).

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**Consider claim 30:**

Minnis discloses the apparatus according to claim 29 above. Minnis does not disclose another switch electrically connected with the decimator for bypassing the signal.

Reisch teaches a switch electrically connected with a decimator for bypassing a signal (*see Reisch at Fig. 2 and col. 10, lines 16-28, where Reisch describes a switch 96 for bypassing the decimation unit 104*).

It would have been obvious to one skilled in the art at the time the invention was made to modify the invention of Minnis, and to have another switch for bypassing the decimator, as taught by Reisch, thus allowing for components sharing, as discussed by Reisch (*see Reisch at col. 10, lines 3-28*).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LIHONG YU whose telephone number is (571) 270-5147. The examiner can normally be reached on 8:30 am-7:00 pm Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on (571) 272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Lihong Yu/

Examiner, Art Unit 2611

/Shuwang Liu/

Supervisory Patent Examiner, Art Unit 2611